RIVERSIDE ENERGY RESOURCE CENTER
SMALL POWER PLANT EXEMPTION
RESPONSE TO CEC DATA REQUESTS
04-SPPE-01

Technical Area: Geology and Paleontology

BACKGROUND

The Geologic Resources and Hazards Section (6.5.3.3) of the SPPE states in the first paragraph: "As observed within 6 of 29 exploration borings placed across the site...." A preliminary geotechnical investigation by the LOR Geotechnical Group (2004) is also mentioned in Section 6.6.4.1.

Data Request 43: Typically the geotechnical data, and often a preliminary geotechnical report, is provided as an appendix to the application. Please provide the geotechnical data identified in the application.

Response: The geotechnical report has been submitted under separate cover.

BACKGROUND

Since the site is underlain by shallow bedrock, we can assume that there will be no amplification of ground motion through the soils profile. However, no estimate of peak ground acceleration is provided for the site.

Data Request 44: Please provide a deterministic peak ground acceleration value for the project.

Response: The CBC includes criteria for the calculations of probabilistic peak horizontal ground acceleration (PHGA) which would be anticipated from the "design basis earthquake" DBE or the "upper bound earthquake" UBE depending on the type of structure. These values are typically expressed in terms of probability of exceeding a certain ground motion. For example, the 10% probability of exceedance in 50 years represents an annual probability of 1 in 475 of being exceeded each year for DBE. Therefore, theoretically

there is a 90% chance that these ground motions will not be exceeded during the 50 year period.

The DBE and UBE ground motions (10% probability of being exceeded in 50 years and 10% probability of being exceeded in 100 years, respectively) is expressed as a fraction of the acceleration due to gravity (g). In our evaluation the values were calculated utilizing the computer program FRISK (Blake, 2000). This program calculates ground acceleration curves as a function of the probability of exceeding different ground motion values at a site. For example, the 10% probability of exceedance in 50 or 100 years is one point on a hazard curve. These values are determined utilizing a user-defined attenuation models that considers earthquake probability, magnitude, and perpendicular distance from the site to the rupture.

For our analysis, we have used attenuation relations by Boore et al. (found in Seismological Research Letters, Volume 68, Number 1, January/February, 1997).

The results of this analysis indicated, based on the referenced attenuation curves, the site has a 10% probability of exceeding a 0.4g in 50 years, or the DBE PHGA is 0.4g and a 10% percent probability of exceeding 0.45g in 100 years, or the UBE PHGA is 0.45g.

BACKGROUND

Section 6.6.6 references "Marshal, 1976 and Fisk and Spencer, 1994."

Data Request 45: Please provide full references in section 6.6.11 - References.

Response: Fisk, L. H. and Spencer, L. A. 1994. Highway construction projects have legal mandates requiring protection of paleontologic resources (fossils): p. 213-225, *in*: Scott F. Burns (editor), Proceedings of the 45th Highway Geology Symposium, Portland, OR, 258 p.

Marshall, L. G. 1976. Paleontological salvage and federal legislation: Journal of Paleontology, vol. 50, p. 346-348.